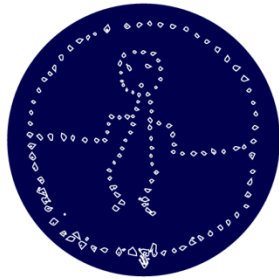


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Towards the Development of a Metadata Model for a Digital Cultural Heritage Collection with Focus on Provenance Information

Susanne Al-Eryani & Stefanie Rühle (SUB Göttingen)

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Overview

- About the ASCH project
- The ASCH collections
- The project's working methodology
- The ASCH model
- Outlook



About the ASCH project

- **Title:** Developing interoperable metadata standards for contextualizing heterogeneous objects, exemplified by objects of the provenance Baron von Asch (short ASCH)
- **Funder:** Deutsche Forschungsgemeinschaft (DFG)
- **Duration:** 01.09.2014 – 31.08.2017
- **Project Lead:**
 - State and University Library of Göttingen (SUB)
 - Institute of Social and Cultural Anthropology
- **Team:**
 - Project coordination: Stefanie Rühle (sruehle(a)sub.uni-goettingen.de)
 - Susanne Al-Eryani (al-eryani(a)sub.uni-goettingen.de)
 - Gudrun Bucher (gudrun.bucher(a)sub.uni-goettingen.de)
 - Jörg-Holger Panzer (panzer(a)sub.uni-goettingen.de)



Aim of the project

- **Development of a metadata model for the description of:**
 - different object types held in different cultural heritage collections
 - provenance information, i.e. evidence for these objects
 - relationships between entities
 - combination of various common and interoperable metadata standards
- **Focus on:**
 - provenance information
 - proving the reliability of provenance information via evidence (letters, labels, diaries, inventories etc.)
 - interlinking between item and evidence

Baron Georg Thomas von Asch and Göttingen



Georg Thomas v. Asch
(1729-1807)



The Göttingen Royal Academic Museum
(1773)

The object's routes to Göttingen

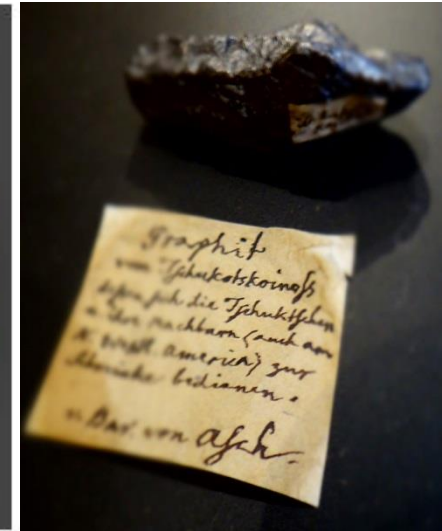


The University Collections holding items of the provenance Baron v. Asch



- the Historic Printed Collections, Manuscripts and Rare Books at the Göttingen State and University Library
- the Ethnographic Collection at the Institute of Social and Cultural Anthropology
- the Skull Collection at the Department of Anatomy and Embryology, Centre for Anatomy, University Medical Centre Göttingen
- the Historical Collections at the Geoscience Centre
- the Coin Cabinet at the Department of Archaeology
- the Art Collection at the Department of Art History
- the Museum of Zoology

The dispersed Asch Collection





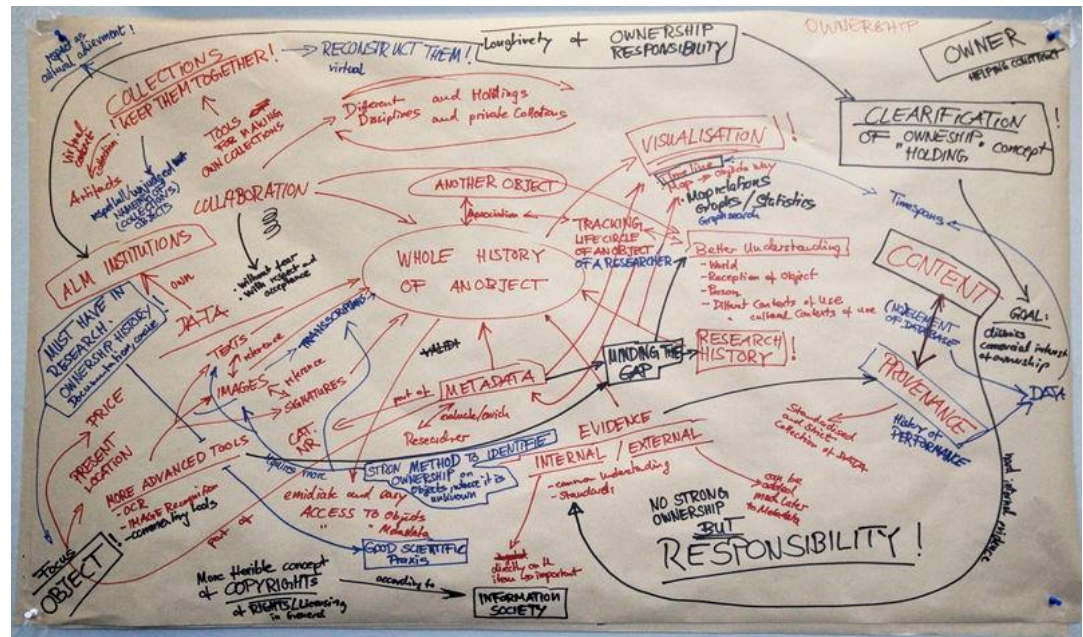
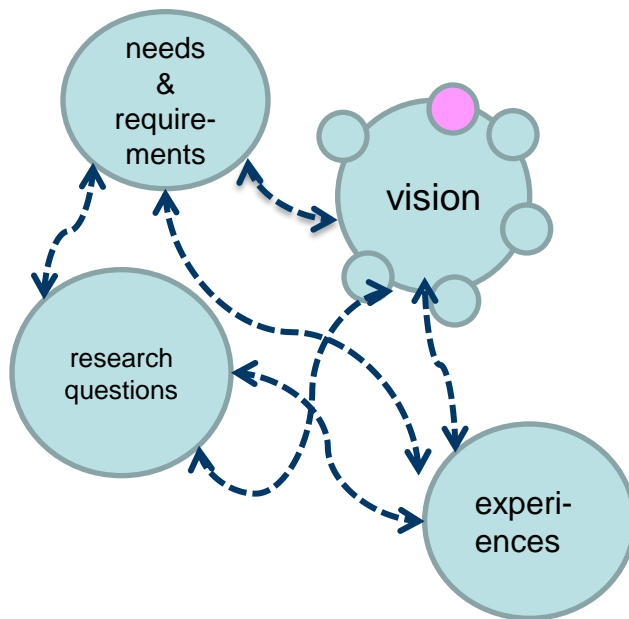
The 7 steps towards the ASCH model

1. Empirical survey, analysis and evaluation of gathered information
2. Formulating of use cases
3. Analysis of requirements
4. Identification of classes and relations between classes
5. Identification of properties
6. Development of application profiles; and
7. Testing the model's functionality

Step One: Empirical survey, analysis and evaluation of gathered information



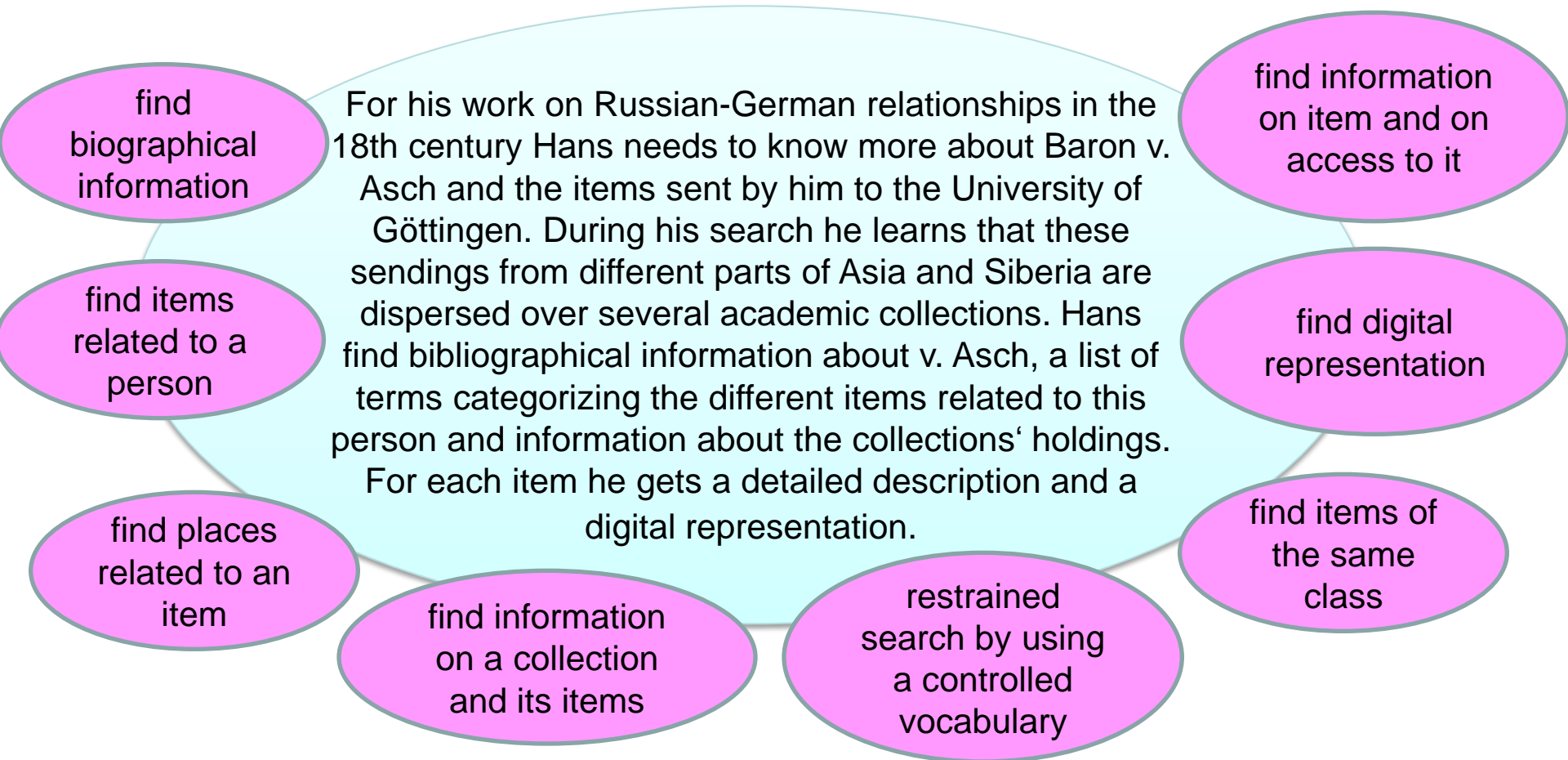
- one-on-one interviews and group discussions with:
 - representatives of different kinds of cultural heritage institutions
 - representatives of different scholarly disciplines





Step Two: Formulating of use cases

1. Case studies and scenarios





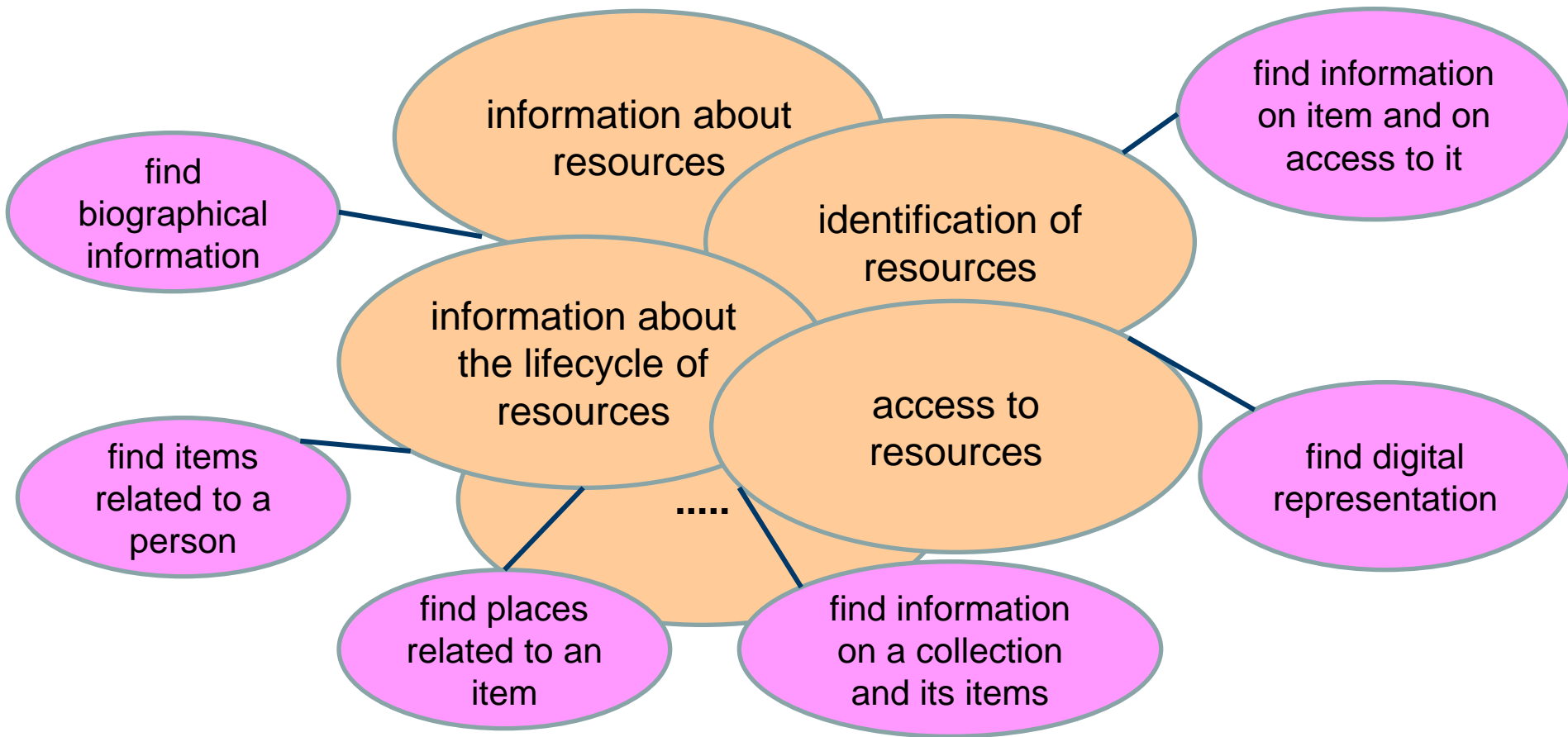
Step Two: Formulating of use cases

ID	Case Study	Scenario ID	Scenario
CS 1	For his work on Russian-German relationships in the 18 th century Hans needs to know more about Baron Georg T. von Asch and the items he sent to the University of Göttingen. During his search he learns more about von Asch's studies in Göttingen and that he sent items from different parts of Asia and Siberia to the University later on, which today are dispersed over several academic collections. Next to information about von Asch he finds a list of terms, categorizing the different items related to von Asch (Geology, Zoology, Ethnography, Literature, Letters, etc.) and information about the collections, holding these items today. For every item he gets a detailed description and a digital representation.	Scenario 6	A user needs biographical information about life and work of an agent.
		Scenario 7	A user is searching for all items related to a person.
		Scenario 26	A user wants to know more about places related to an item.
		Scenario 43	A user found information about an item and wants to know how he/she may get access to the item.
		Scenario 14	Browsing the web a user has found information about a collection. He/she wants to know what sort of items he/she will find at the collection.
		Scenario 15	A user wants to qualify his/her search using values from a controlled vocabulary (e.g. a taxonomy or authority file).
		Scenario 13	Searching for an item a user uses a controlled vocabulary to get all items of the same class.
		Scenario 17	A user is identifying the item he/she needs by a digital representation of the item.
CS 2	Greta is working on an article about fluorit occurrence at the Yenisei. She is living in Hannover and hopes to get some samples at a university nearby. She is searching for "fluorite" and gets a list of items named as "fluorite" or "fluorspar". The list is ranked by the proximity of the holding institutions to her location. She specifies her search by using the geographic coordinates of the area she is working about. She gets a shorter list and	Scenario 12	A user is searching for a resource known by different names. He/she uses one of the names for his/her search and gets all hits where one of the names is been used.
		Scenario 45	A user is searching for an item in an institution nearby. He/she gets a list of all institutions storing such items and wants to select the nearest one.



Step Two: Formulating of use cases

2. Scenarios and use cases



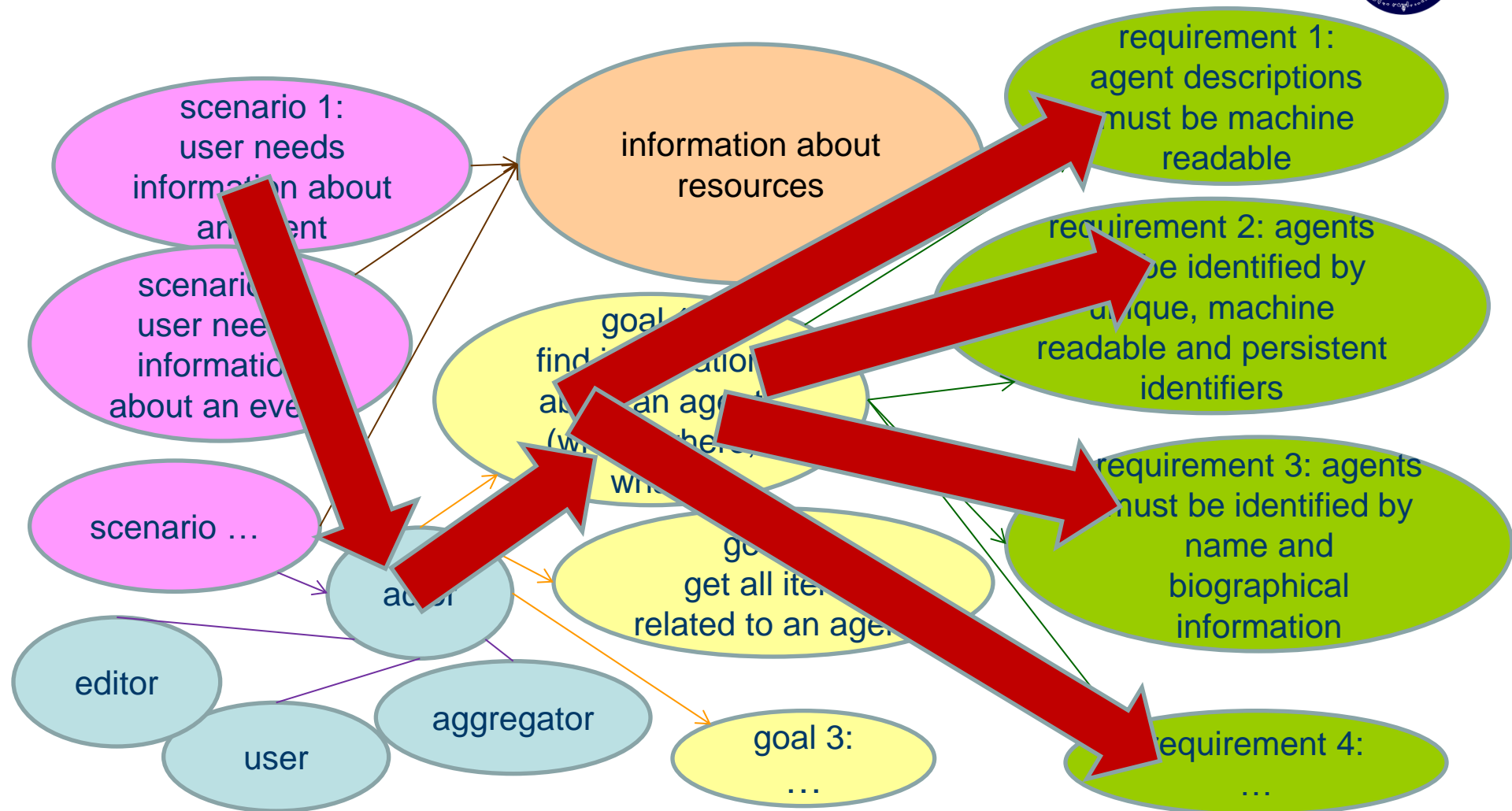


Identified Use Cases

- UC 1: Information about resources
- UC 2: Identification of resources
- UC 3: Information about the history / lifecycle of resources
- UC 4: Change of use and reception of resources
- UC 5: Proof of information by evidence
- UC 6: Provenance of statements
- UC 7: Access to resources
- UC 8: Reuse of data



Step Three: Analysis of requirements



Step Three: Analysis of requirements



Use Case	ID	Scenario	Actor	Goal	Requirement ID	Requirement
Scenarios related to the search and finding of resources in the web in general						
UC 1 Information about resources	Scenario 1	A user wants to know more about a collection and the items that belong or belonged to it.	user	Find information about a collection.	[Requirement 46]	Collection descriptions must be machine readable.
				Select a collection.	[Requirement 48]	Collections must be identified by an explicit name.
				Browse from item description to collection description.	[Requirement 51]	Item descriptions must be assigned to 1-n collections.
UC 1 Information about resources	Scenario 2	A user is searching for items in a collection.	user	Browse through resources related to a collection	[Requirement 75]	Items must be identified by identifiers that are unique, machine readable and persistent.
					[Requirement 52]	All items of a collection must be interlinked with the collection using unique, machine readable and persistent identifiers.
UC 1 Information about resources	Scenario 3	A user needs to know when an item was related to another item (e.g. was part of another item).	user	Find information about the time an item was related to another item	[Requirement 12]	The relation between two resources can be specified by the time this relation was valid.
UC 1 Information about resources	Scenario 4	A user needs information about an event.	user	Find information about an event	[Requirement 21]	Event descriptions must be machine readable.
UC 1 Information about resources	Scenario 5	An editor describes the relation between an item and an agent.	editor	Characterize the link between an item and an agent.	[Requirement 20]	Item descriptions must be interlinked with 1-n events (creation, modification, collection, etc.) the lifecycle of the item.



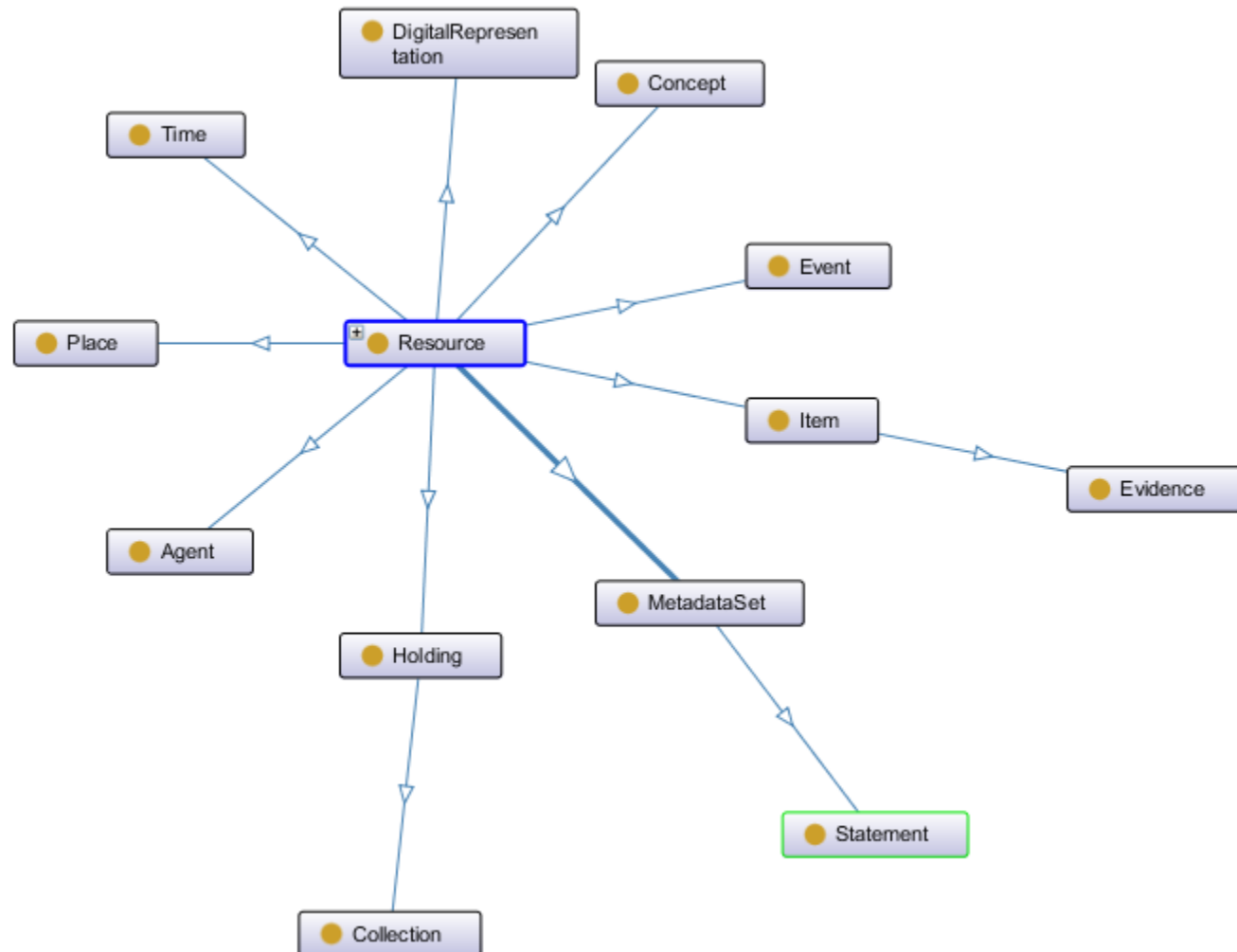
Step Three: Analysis of requirements

1. Requirements concerning the end-user:
 - context of usage
2. Requirements concerning the metadata:
 - properties of entities
 - relationships between entities
3. Requirements concerning the system:
 - functional settings

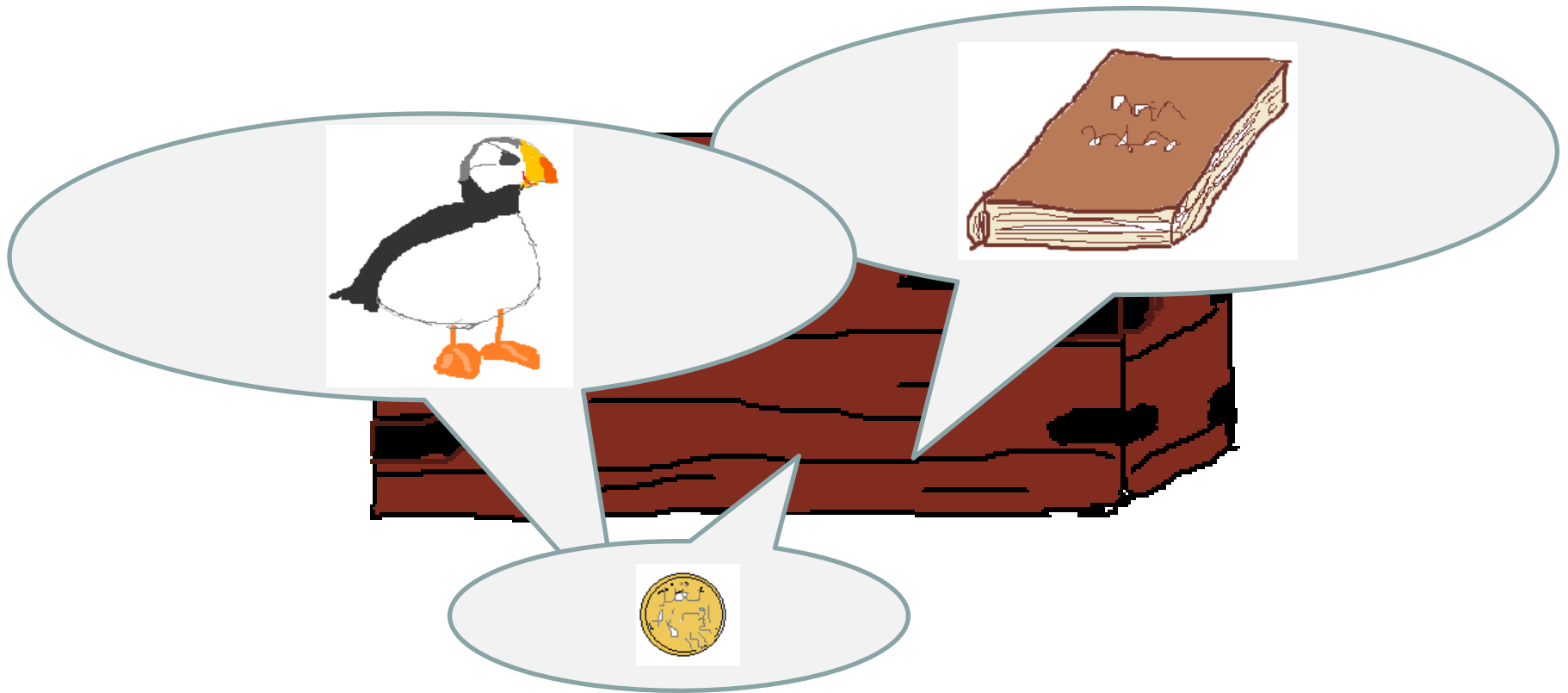
Step Four: Identification of classes and relations between classes



Classes



Conclusion

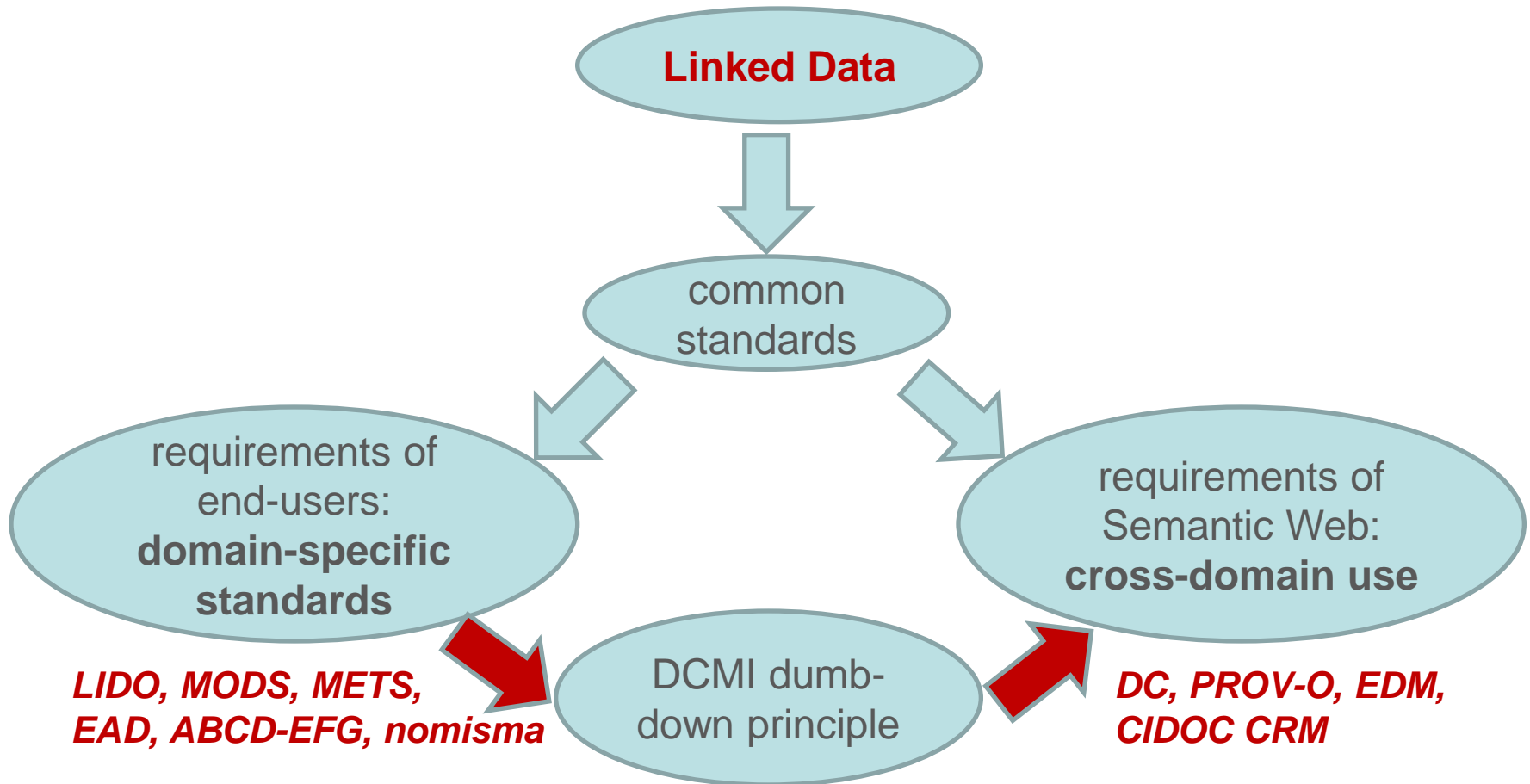




Conclusion

- Domain or type specific metadata descriptions of the item
 - e.g. description of a book using MODS, of a coin using nomisma.org, of a bird using DwC
- Cross-domain metadata description of the provenance of an item
 - provenance = all descriptions of activities/events in the lifecycle of an item (e.g. creation, finding, losing, destruction)
 - description of provenance using e.g. PROV-O, CIDOC-CRM, DCMI Metadata Terms
- Statements about provenance statements to prove the reliability of provenance information
 - e.g. by evidence like letters, diaries, label, inventories, etc.)

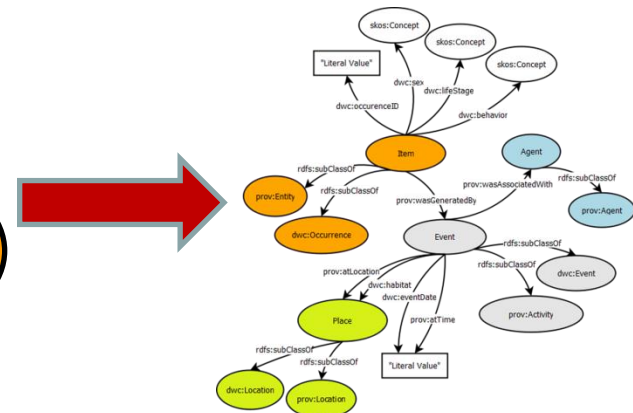
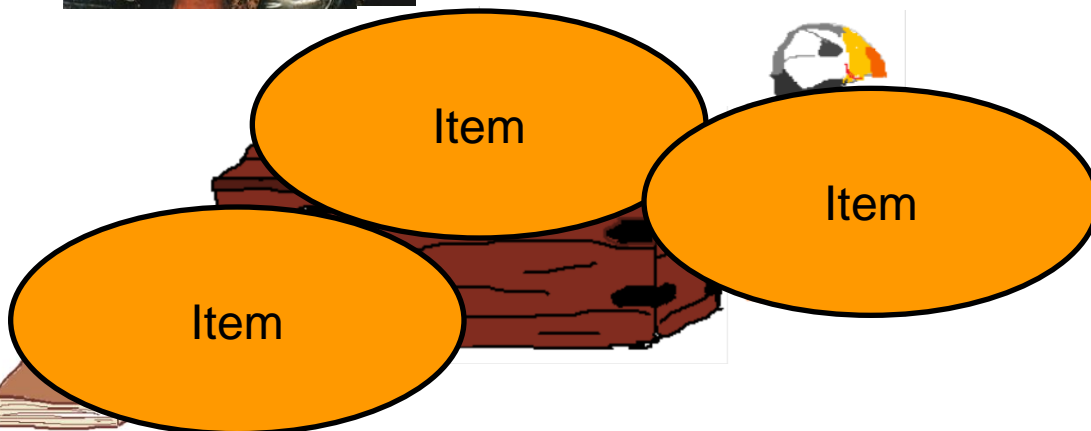
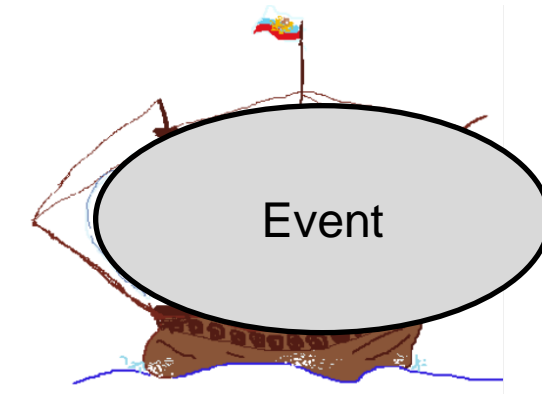
Outlook



Outlook



Relations between classes

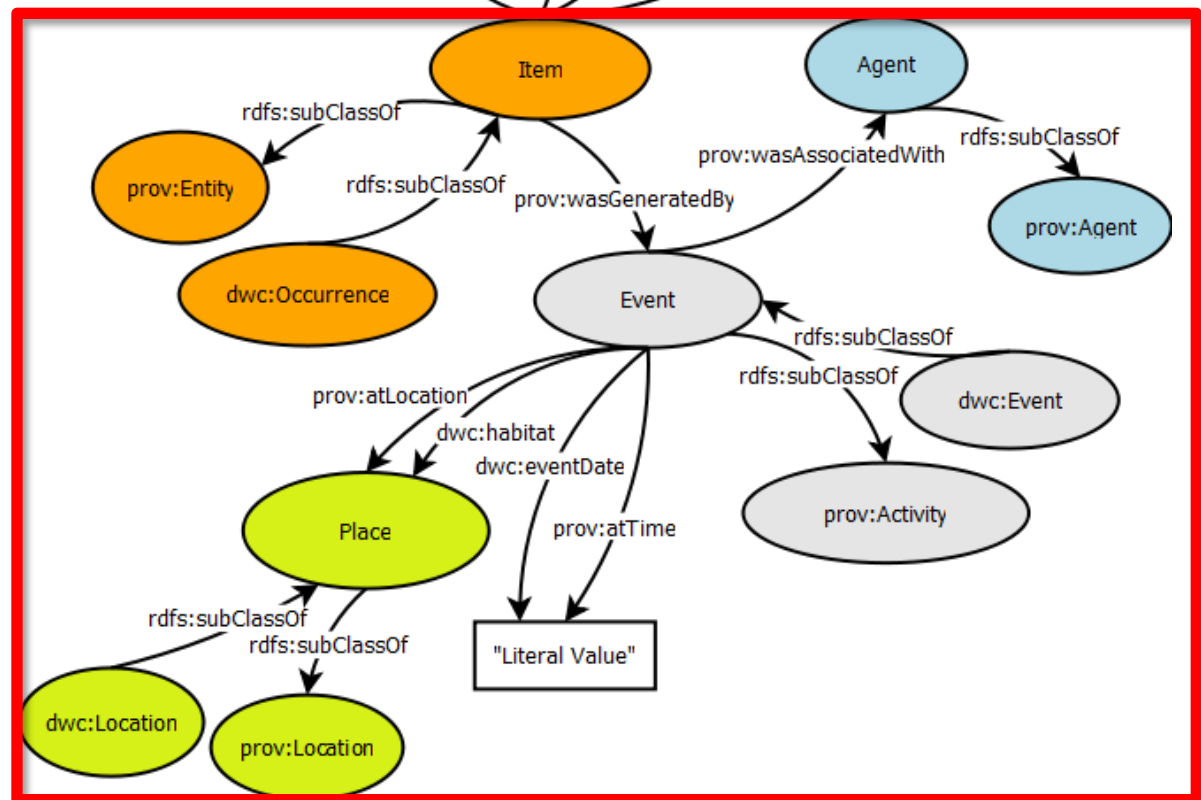
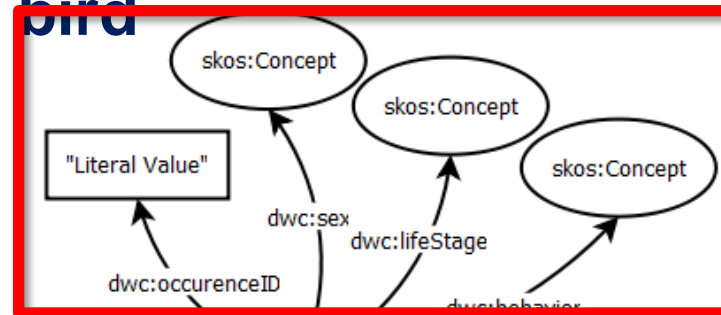


Example 1: Description of a bird



Using

- Darwin Core
- PROV-O

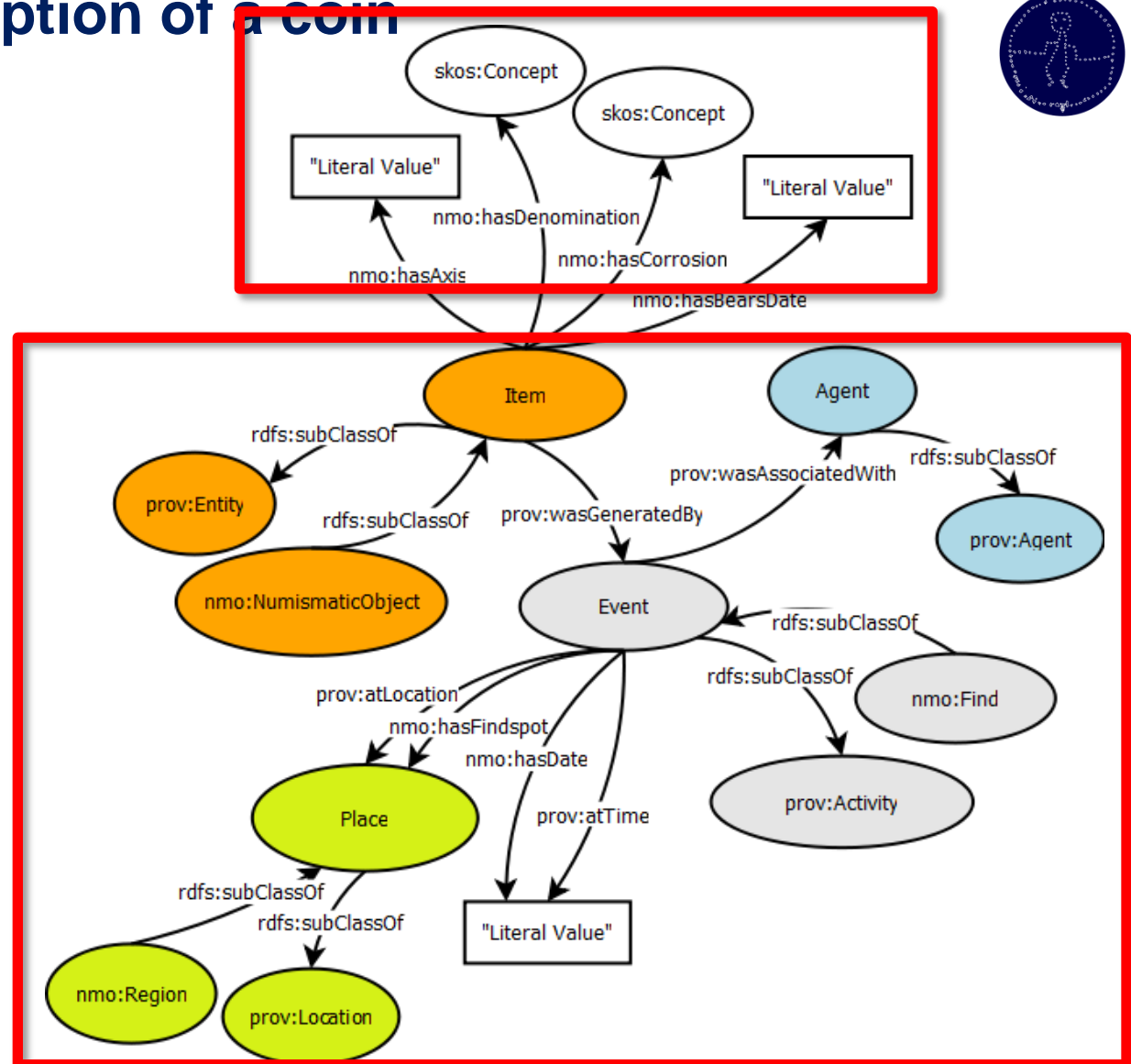
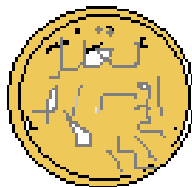


Example 2: Description of a coin



Using

- Nomisma Ontology
- PROV-O



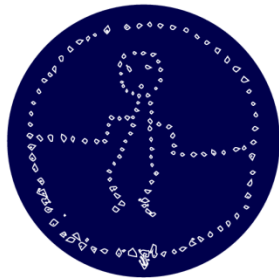


Outlook

- **Step Five:** Identification of properties and alignment with metadata standards
- **Step Six:** Development of application profiles
- **Step Seven:** Testing the model's functionality in different systems

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Thank you!

